

REMARKS

Minor amendments have been made to claim 1.

Rejection of Claims 1-16 Under 35 U.S.C. § 103(a) -

The Examiner has rejected claims 1-16 under 35 U.S.C. § 103(a) as being obvious over WO 98/25637 in view of U.S. Patent No. 5,955,110 (hereinafter the '110 patent) and U.S. Patent No. 4,399,123 (hereinafter the '123 patent). The Examiner contends that WO 98/25637 teaches the use of a tissue graft composition comprising liver basement membrane of a warm-blooded vertebrate for repair of damaged or diseased tissues, where the composition is treated to remove cells and cellular components. The Examiner further contends that one skilled in the art would have been motivated to use the invention of WO 98/25637 for the repair of the abdominal wall because the '110 patent teaches the use of a multilayered, homolaminate submucosal graft for abdominal wall repair and the '123 patent teaches a method for using basement membrane for the treatment of hernias. Applicant respectfully traverses the Examiner's rejection. Applicant's claims 1-16 are not obvious over WO 98/25637 in view of the '110 patent and the '123 patent.

A. All the Claim Limitations Must be Taught or Suggested by the Prior Art -

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Therefore, in order for Applicant's invention to be rendered obvious under 35 U.S.C. § 103, the combination of references relied upon by the Examiner must teach each and every element of Applicant's invention, as defined by claims 1-16.

Applicant's claims 1-16 require the step of removing endotoxins from the graft composition. WO 98/25637, the '110 patent, and the '123 patent do *not* suggest the specific element of removing endotoxins from the graft composition. An endotoxin is a toxic substance

present in the outer membrane of gram-negative bacteria. WO 98/25637 teaches that *natively associated cellular components* of liver tissue of a warm-blooded vertebrate are removed from the composition. There is no suggestion in WO 98/25637, the '110 patent, and the '123 patent of the specific element of removing bacterial endotoxins from the graft composition. Thus, Applicant's claims 1-16 are not obvious over WO 98/25637 in view of the '110 patent and the '123 patent.

B. References Cannot Be Combined Where Reference Teaches Away from Their Combination -

It is improper to combine references where the references teach away from their combination. *See* MPEP § 2145; *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). Regarding the rejection of claims 1-16 over WO 98/25637 in view of the '110 patent and the '123 patent, the '123 patent not only teaches away from the claimed invention, but the '123 patent also teaches away from combination with WO 98/25637. A skilled artisan would not combine a reference that teaches that glycoproteins must be removed to create a tissue composition that is suitable for implantation, with a reference that teaches the use of a tissue graft composition comprising liver basement membrane with glycoproteins for the repair of damaged or diseased tissues.

In the present Office Action, the Examiner contends that the '123 patent only suggests the removal of those glycoproteins that would cause an antigenic response, not that glycoproteins could not be added back to the composition. Applicant does not agree with the Examiner's analysis. The '123 patent explicitly states that the fibrous tissue preparation is "free of nonfibrous tissue proteins and antigenic polysaccharides, mucopolysaccharides, and glycoproteins" (see the '123 patent: claims 1 and 3; col. 2, lines 9-16; and col. 4, lines 55-62). The '123 patent states that glycoproteins are antigenic and their removal (step 1) is required to

create a fibrous tissue composition that is suitable for implantation (see the '123 patent, col. 3, lines 33-59).

Furthermore, in column 3, lines 8-18, the '123 patent states that, even for transplants between individuals within a species, "such carbohydrate material may not be significantly antigenic, nevertheless it does not contribute to the strength of the tissue and may severely obstruct the subsequent recolonization of the graft by host cells such as fibroblasts and interfere with the formation of new capillaries within the graft." Therefore, WO 98/25637 and the '123 patent cannot be combined because the '123 patent teaches away from combination with WO 98/25637. Furthermore, the '123 patent expressly teaches away from Applicant's claims 1-16 because the prepared graft composition "comprises a glycoprotein." Thus, contrary to the Examiner's contention, claims 1-16 of the instant application are not obvious over WO 98/25637 in view of the '110 patent and the '123 patent. Withdrawal of the rejection of claims 1-16 under 35 U.S.C. § 103(a) is respectfully requested.

Rejection of Claims 1-16 For Obviousness-Type Double Patenting -

(1) The Examiner has rejected claims 1-16 as being unpatentable for obviousness-type double patenting over claim 11 of U.S. Patent No. 7,482,025 (hereinafter the '025 patent) in view of the '110 patent, WO 98/25637, and the '123 patent. Applicant respectfully traverses the Examiner's rejection.

Claim 11 of the '025 patent is directed to tissue grafts comprising gelled liver basement membrane and further comprising a component selected from the group consisting of a mineral, an amino acid, a sugar, a peptide, a protein, and a glycoprotein. Claim 11 does not require that DNA and endotoxins be removed from the graft composition. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Therefore, in order

for Applicant's invention to be rendered unpatentable for obviousness-type double patenting, the combination of references relied upon by the Examiner must teach each and every element of Applicant's invention, as defined by claims 1-16. Applicant's claims 1-16 require the step of removing endotoxins from the graft composition. Because claim 11 of the '025 patent, WO 98/25637, the '110 patent, and the '123 patent do not provide any suggestion of the specific element of removing endotoxins from the graft composition, the references either alone or when combined are incapable of defeating the patentability of Applicant's claims 1-16.

Furthermore, because the claims of the instant application require that the graft composition comprise a glycoprotein, the teaching away argument above applies with equal force to this obviousness-type double patenting rejection. Therefore, claims 1-16 are not obvious over claim 11 of the '025 patent in view of the '110 patent, WO 98/25637, and the '123 patent. Withdrawal of the rejection of claims 1-16 for obviousness-type double patenting is respectfully requested.

(2) The Examiner has rejected claims 1-16 as being unpatentable for obviousness-type double patenting over claims 1-3 and 9 of U.S. Patent No. 6,793,939 (hereinafter the '939 patent) in view of the '110 patent, WO 98/25637, and the '123 patent. The '939 patent is a continuation application of the U.S. national application that was based on the PCT application that published as WO 98/25637. Applicant respectfully traverses the Examiner's rejection.

Claims 1-3 and 9 of the '939 patent are directed to tissue graft compositions comprising liver basement membrane wherein the basement membrane is devoid of endogenous cells. The claims do not require that DNA and endotoxins be removed from the graft composition. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ


580 (CCPA 1974). Therefore, in order for Applicant's invention to be rendered unpatentable for obviousness-type double patenting, the combination of references relied upon by the Examiner must teach each and every element of Applicant's invention, as defined by claims 1-16. Applicant's claims 1-16 require the step of removing endotoxins from the graft composition. Because claims 1-3 and 9 of the '939 patent, WO 98/25637, the '110 patent, and the '123 patent do not provide any suggestion of the specific element of removing endotoxins from the graft composition, the references either alone or when combined are incapable of defeating the patentability of Applicant's claims 1-16.

Furthermore, because the claims of the instant application require that the graft composition comprise a glycoprotein, the teaching away argument above applies with equal force to this obviousness-type double patenting rejection. Therefore, claims 1-16 are not obvious over claims 1-3 and 9 of the '939 patent in view of the '110 patent, WO 98/25637, and the '123 patent. Withdrawal of the rejection of claims 1-16 for obviousness-type double patenting is respectfully requested.

CONCLUSION

The foregoing amendments and remarks are believed to fully respond to the Examiner's rejections. The claims are believed to be in condition for allowance. Applicant respectfully requests allowance of the claims, and passage of the application to issuance.

Respectfully submitted,



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